

Article

Teachers' Epistemological Assumptions about Educational Inequality in Four Societies: A Holistic Reading Strategy for Examining Sociocultural Epistemologies

Seung-Hwan Ham ¹  and Rae Young Kim ^{2,*} ¹ Department of Education, Hanyang University, Seoul 04763, Korea; hamseunghwan@gmail.com² Department of Mathematics Education, Ewha Womans University, Seoul 03760, Korea

* Correspondence: kimrae@ewha.ac.kr; Tel.: +82-2-3277-2618

Abstract: Conventional approaches to analyzing cross-national data on teacher knowledge have often failed to recognize qualitative variations across and within different countries. A dilemma confronted by researchers is how to avoid the essentialization of cultures while benefiting from cultural intuition by attending to general national patterns. If researchers focus on exploring the diverse subjectivities of respondents, they are not likely to observe general national patterns because subtle nuances in meaning make it challenging to deal with data with broad categories. There may be too many subtle meanings. However, if researchers focus on general national patterns, they may lose the hidden scripts of the data, as little attention is paid to nuanced meanings. Our data suggest that a holistic reading approach examining different types of semantic foci can be an alternative method for dealing with such a methodological dilemma. This study provides an illustrative example analysis based on this alternative analytic approach.

Keywords: teacher knowledge research; cross-national analysis; qualitative data; holistic reading



Citation: Ham, S.-H.; Kim, R.Y. Teachers' Epistemological Assumptions about Educational Inequality in Four Societies: A Holistic Reading Strategy for Examining Sociocultural Epistemologies. *Sustainability* **2022**, *14*, 2437. <https://doi.org/10.3390/su14042437>

Academic Editor: Andrea Weinberg

Received: 26 January 2022

Accepted: 16 February 2022

Published: 20 February 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

This study explores methodological possibilities for research on future teachers' epistemological assumptions about educational inequality in a cross-national analysis. Many studies have been conducted on factors contributing to student achievement from comparative and international perspectives. However, a relatively small set of studies have examined the analytical significance of understanding the societal contexts in which student achievement as a social phenomenon attains local-cultural meanings. This study attempts to find methodological avenues to reveal socioculturally embedded epistemological assumptions of student achievement by analyzing preservice teachers' responses to an open-ended question about educational inequality (see the Section 3).

Our close analysis of the data from Germany, Hong Kong, South Korea, and the United States suggests that researchers must attend to the sociocultural epistemologies that lie beneath the literal meaning in the responses to conduct a sharper analysis. Although preservice teachers in different countries might share the presumption that socioeconomic disparities between students contribute unequally to academic achievement, epistemological assumptions underlying this belief may vary across countries (see, e.g., [1–3]). This study contributes to the literature on teacher knowledge in comparative perspectives by situating the preservice teachers' responses in sociolinguistic contexts. Methodological implications are discussed concerning how to examine teachers' general pedagogical knowledge and beliefs about educational equity in cross-national contexts.

2. Background

Using a broad definition, we conceive of epistemology as a set of knowledge and beliefs held by people in a society, especially regarding appropriate and legitimate ways

of knowing and behaving. We use this term to describe the nature of what educational researchers call “general pedagogy,” which is a blend of both theoretical knowledge of education and “social” [4,5] and even “personal” [6] beliefs about appropriate ways of teaching and learning. In particular, we are interested in preservice teachers’ knowledge and beliefs about the relationship between students’ socioeconomic backgrounds and their academic achievement. Knowledge and beliefs are positioned within particular societal, cultural, and historical contexts; therefore, the notion of epistemology is better understood when it is put as sociocultural epistemologies. We contend that sociocultural epistemologies of educational inequality may vary across (and even within) countries, and such epistemological differences deserve more careful attention from comparative educational researchers (for similar perspectives, see, e.g., [1,7–10]). Capturing and comparing the subtle semantics in the responses would help us better understand different sociocultural epistemologies of educational inequality in a cross-national analysis.

To scrutinize such sociocultural epistemologies across different national contexts, we adopt a sociolinguistic perspective focusing on different local-cultural assumptions and beliefs beyond textual logic in language use. Considering that different language communities “build up semantic fields or zones of meaning that are [socio]linguistically circumscribed” [11] (p. 41), an interpretation of the *text* (i.e., data) should be grounded on *context* as much as possible. Although some interpretive sociological traditions have already stressed the importance of context and the notion of “situatedness” [12,13], cross-national analyses of education have often ignored the subtle semantics in a given set of data that contains culturally contextualized meanings and connotations [14,15].

3. Data

An investigation of the sociocultural epistemological dimension of educational inequality requires rich descriptive data. Our data, collected through a cross-national open-ended survey, allow us to explore methodological possibilities and challenges around examining such a dimension. This study focuses on one item in the survey, which asked the respondents to provide plausible explanations regarding why students from lower socioeconomic backgrounds tend to show lower performance than children from higher socioeconomic backgrounds. The exact question was as follows: “Tests of student achievement have shown that, on average, children from lower socio-economic backgrounds do less well than children from higher socio-economic backgrounds. What do you consider to be reasonable explanations of this phenomenon?” A large sample of preservice teachers in each country answered this open-ended question (for details about the sample size and strategy, see [16]). The question was translated into several languages so that respondents in each country could answer the question in their language. Having been involved in devising and revising the question, we closely revisited different versions of the item translated into different languages. This process was to ensure fair compatibility of the item meaning across countries.

Our data provide a rich context in which many methodological questions can be raised and discussed concerning how to capture nuanced sociocultural meanings in responses to open-ended questions. Based on our data analysis, implications for further studies of general pedagogy and educational equity are discussed with respect to methodological possibilities for analyzing cross-national qualitative data.

4. Analytical Approach

As an explorative analysis, this study closely examined a few responses in depth rather than all the data extensively. In this process, particular attention was focused on the qualitative aspects of the data that revealed socioculturally embedded epistemological assumptions of student achievement held by preservice teachers in different countries. The analytical approach of this study focused on sociolinguistic aspects of the data. Although several linguistic–anthropological studies of classrooms have been conducted [17,18], few systematic studies have examined cross-national data from a sociolinguistic perspective.

Since our data were collected through an open-ended survey question in each country's language; thus, they are appropriate for a qualitative study closely examining socioculturally nuanced meanings in the responses from different countries.

Conventional coding schemes of cross-national data gathered through open-ended questions include several valuable methods, such as counting the keywords and identifying thematic foci. Although such methods are highly efficient for analyzing data, they are often likely to reduce data into discrete subsets for analysis with little attention to subtle sociocultural nuances. The responses containing preservice teachers' value-laden views of educational inequality would not be sufficiently analyzed without the subtext of the data [19,20]. As an alternative analytical attempt, this initial work raises questions about such conventional approaches to cross-national data analysis. We search for methodological avenues that are less reductive yet systematic enough to gather nuances in the responses.

Probing the cross-national data, we aimed to minimize the translation of responses into a single language (i.e., English) because translation inevitably involves a certain degree of decontextualization of nuanced meanings conveyed in the original language. Considering that language conveys meaning as it constructs knowledge and beliefs in particular sociohistorical contexts, literal (or logical–rationalist) translations often have different meanings than the original languages [21]. To take better advantage of the qualitative richness of the data, we decided to deal with the responses in the original languages through (or with the assistance of) the bilingual speakers in our research group. When we had to translate some of the responses, at least two people translated the text to increase the validity and reliability of the translation and avoid losing culturally nuanced meaning as much as possible.

Carefully examining the terms and phrases in the responses in the original languages, we observed methodological challenges regarding data analysis strategies for the open-ended question due to different epistemological assumptions underlying particular terms and phrases across different countries. Thus, we devised a holistic reading strategy that could be employed to observe qualitative features in the data both *across* and *within* countries. This attempt was to interpret the data beyond the textual logic of the responses. Our analytical approach primarily focused not on the literal meanings of the responses but on the local-cultural subtexts in the responses. Closely examining the cross-national data with particular attention to different semantic foci of the responses, we found clues about possible analytical strategies to capture epistemological assumptions embedded in different social, cultural, and historical contexts.

5. Semantic Foci: A Holistic Reading Approach

In the alternative analytical approach, one of our interests was to determine whether preservice teachers tended to focus on deficits (or disadvantages) of lower-achieving students or assets (or advantages) of higher-achieving students when they explained different socioeconomic backgrounds and their effects on student achievement. From a logical–rationalist viewpoint, preservice teachers mentioning something particular (e.g., resources for learning) conveys a constant meaning no matter whether the focus is on lower socioeconomic status (SES) students (e.g., the lack of resources for learning) or on higher SES students (e.g., more or better resources for learning). They are seen as pointing out the same factor; consequently, they are usually coded the same.

However, such a logical–rationalist interpretation does not always capture subtle nuances and the reasoning behind a specific idea because there may be different epistemological ways of framing the explanation of a concept. For instance, a “deficit” model of epistemology would view unequal academic achievement primarily as a problem of lower-achieving students who do not have enough economic, cultural, and social forms of support or resources considered essential for achieving the norm. The following response is a good example illustrating the difficulty for lower SES students to develop self-confidence in the subject matter because of the “different” conditions in which they are situated. Rather

than being provided with adequate resources, lower SES students are often faced with many “sociological burdens”.

The subject [of] math requires a “can do” attitude. It is integral and requires a lot of practice, discipline, and focus. Students from lower socioeconomic backgrounds are more likely not to develop those skills because of different sociological burdens. They need more encouragement to stay on track, which is not available to them in our school system.

(U.S. response)

In contrast, an “asset” model of epistemology assumes that higher-achieving students make lower-achieving students appear “lower”—the difference in achievement becomes visible only because some students achieve beyond the norm due to extra (ordinary) support and resources. The following response is an illustrative example of an “asset” model explanation of educational inequality.

Students from rich families not only receive education from schools, they will have many tutorial classes after school. Also, they are wealthy enough to go to other countries to broaden [their] experience and gain more exposure and insight. (Hong Kong response)

Table 1 lists one way to view different semantic foci of the responses. If a response focuses on explaining *why lower SES students achieve less* rather than *why higher SES students achieve more*, the response falls into the “lower” category (F1). This type of response identifies what lower SES students have less of or lack rather than what high SES students have more of or better take advantage of. In contrast, if a response focuses on explaining *why higher SES students achieve better* rather than *why lower SES students achieve less*, the response belongs to the “higher” category (F2). This second type of response identifies what higher SES students have more of or better take advantage of rather than identifying what lower SES students have less of or lack.

Based on these two semantic foci, two more types of responses follow. One is the combination of “both” F1 and F2, in which case, a response mentions both *why lower SES students achieve less* and *why higher SES students achieve more* (F3); the other is “neither” F1 nor F2, in which case, a response is a general statement that does not focus explicitly on either lower or higher SES students (F4). In addition, if no response has been made, we classified it as “blank” (F5).

This table is helpful because we can observe clues about different connotations and subtle nuances in the responses through holistic reading. Various responses may frame the explanations differently despite mentioning some of the same or similar aspects as factors contributing to educational inequality. For example, there may be substantial differences in underlying epistemological assumptions between the “lower” and “higher” responses. A “lower” response presumes that lower-achieving students are at the center of the problem because their achievement is below the norm, whereas a “higher” response implicitly assumes that lower-achieving students are problematic only when or because they are compared to higher-achieving students (as observed in many Korean responses; see the Section 6).

Although many analytical strategies employ systematic methods to count specific words, such strategies often risk the possibility of “remov[ing] words from the contexts in which they occur. Subtle nuances are likely to be lost” [22] (p. 779). We contend that a holistic reading strategy helps interpret the subtextual meanings of the responses and their specific terms because the very meaning of student achievement and educational inequality may not be consistent across different responses. However, we do not contend that a holistic reading approach can substitute conventional methods. Instead, we suggest that such alternative methodological attempts supplement conventional methods when we examine different epistemologies through which reasoning is framed in various ways. Our version of different semantic foci in Table 1 is one example of the holistic reading approach to analyzing cross-national qualitative data.

Table 1. Different semantic foci of the data: Modal responses and examples.

Category	Modal Response	Semantic Focus	Example
F1	“Students from lower socioeconomic backgrounds achieve less due to some reasons”. (The subject of the sentences tends to be lower SES students.)	The focus is on explaining why lower SES students achieve less (rather than explaining why higher SES students achieve more). The response identifies what lower SES students have less of or lack (rather than identifying what high SES students have more of or take better advantage of).	<p>“Students from a lower SES most likely live in a bad neighborhood, which leads to many other stressors. Also, . . . they won’t be able to hire a tutor when needed”.</p> <p>“I think this has a lot to do with family support. The students [from lower SES families] may not have the encouragement or the drive to try as hard”.</p> <p>“The subject [of] math requires a “can do” attitude. . . . Students from lower socioeconomic backgrounds are more likely not to develop those skills because of different sociological burdens”.</p>
F2	“Students from higher socioeconomic backgrounds achieve better due to some reasons”. (The subject of the sentences tends to be higher SES students.)	The focus is on explaining why higher SES students achieve more (rather than explaining why lower SES students achieve less). The response identifies what higher SES students have more or take better advantage of (rather than identifying what lower SES students have less of or lack).	<p>“Students from higher socioeconomic backgrounds can gain better support from parents and get higher motivation to achieve their future goals”.</p> <p>“Students from rich families not only receive education from schools, they will have many tutorial classes after school”.</p> <p>“Higher socioeconomic backgrounds can provide more learning resources than lower socioeconomic backgrounds”.</p>
F3	Both F1 and F2 (The subjects of sentences tend to include both lower and higher SES students.)	The respondent mentioned both (1) why lower SES students achieve less and (2) why higher SES students achieve more. The response identifies both (1) what lower SES students have less of or lack and (2) what higher SES students have more of or take better advantage of.	<p>“Children with high socioeconomic backgrounds can put more emphasis on school, and they see the relevance of learning and striving to be successful. The lower socioeconomic background kids may not have the pressure from home to succeed”.</p> <p>“They [lower SES students] are exposed to less mathematics at home. Typically, students with a high SES background have parents who are good at math and can help them”.</p> <p>“Children from higher socioeconomic backgrounds may have extra private tutorial lessons after school, but children from lower socioeconomic backgrounds may not have the lessons. The learning environments of children from higher socioeconomic backgrounds are better”.</p>

Table 1. Cont.

Category	Modal Response	Semantic Focus	Example
F4	Neither F1 nor F2 (The subjects of sentences tend not to include either lower SES students or higher SES students.)	The response is not explicit about either (1) why lower SES students achieve less or (2) why higher SES students achieve more. The response is a general statement (whether the statement is an appropriate response or not).	<p>“It’s because of the difference in teacher quality across different towns”.</p> <p>“From the genes of the family”.</p> <p>“Parents’ socioeconomic backgrounds greatly influence children’s opportunities to learn. The difference in family support may result in different test scores”.</p>
F5	Blank	No response.	

Figure 1 is a preliminary analysis according to the semantic foci. Despite the small size of the sample used in this analysis, the shapes of the areas on the charts covered by the data are quite distinct across different countries. In addition, the charts suggest that some countries may be quite homogeneous in terms of explaining educational inequality as a single semantic focus dominant over others. Other countries may not display a clear pattern, indicating significant variations within each of these countries regarding how to frame the explanation of educational inequality. Using such a holistic reading strategy can help examine the data’s subtext or hidden cognitive scripts.

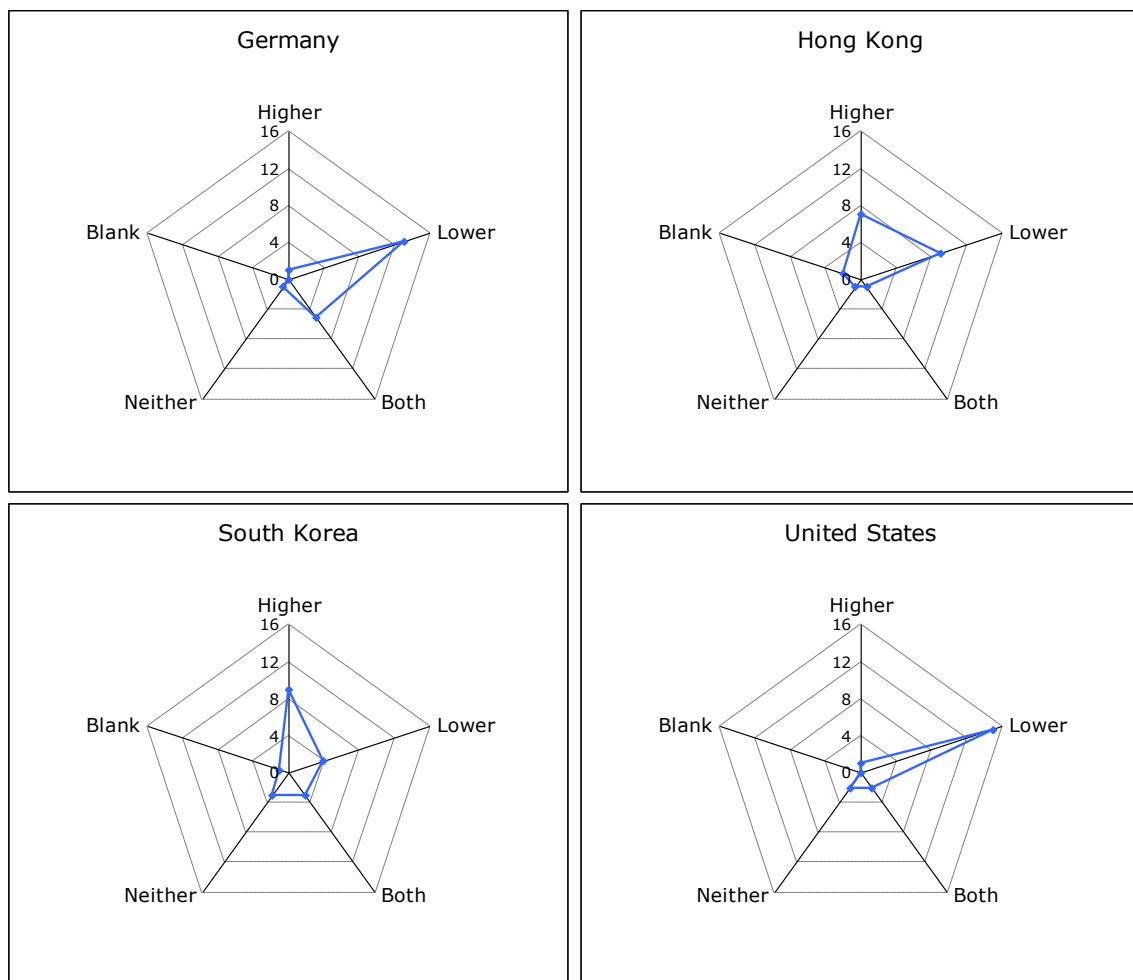


Figure 1. Different semantic foci of the data: A preliminary analysis.

6. Semantic Foci Intertwined with Terms and Phrases

As mentioned (see the Section 3), the open-ended survey question asked why “lower” SES students tended to achieve “less well”. Our initial intention was to determine future teachers’ knowledge and beliefs about educational inequality; thus, the question was explicitly about lower SES (or lower-achieving) students rather than about higher SES (or higher-achieving) children. This intention partially accounts for why a significant portion of the responses in the cross-national data mention deficits or disadvantages of lower SES students rather than mentioning assets or advantages of higher SES students. For example, many English-speaking respondents frequently used the word “resources” to describe a broad range of insufficiencies of economic and social support provided to lower SES students. By focusing on various types or forms of resources, they explained that the lack (or paucity) of available resources would lead lower SES students to achieve less. In the following response, the word “resources” is associated with various aspects of macro- and micro-contextual contingencies, such as the local economy, school conditions, and parental support.

Students from lower socioeconomic backgrounds tend to have less resources. Typically, school’s funding is based on property taxes, and those [who live] in property poor districts won’t have access to as many resources as property rich districts. Also, they may not have as much support at home due to parents working more. (U.S. response)

In addition, lower SES children are described in many responses as having “life goals” or “aspirations” that are often different from those of higher SES children. They tend to have lower “self-esteem” and less “motivation” in school, as they do not have a “role model” or “example” at home. The response below illustrates such cultural and psychological deficits or disadvantages of lower SES students, which may hinder them from achieving higher goals.

Different life goals and, therefore, motivation for other things [account for this phenomenon]. Children in low socioeconomic families often do not have an example, and they concentrate on only one thing for work/career. (translated from a German response)

However, many preservice teachers, especially those in South Korea, explained the student achievement gap with a particular semantic focus on “higher” in Table 1. Korean preservice teachers often mentioned various special (or extraordinary) efforts that higher SES students made for better achievement. If we metaphorically use the popular phrase “no child left behind,” it succinctly illustrates the epistemology in which lower-achieving students are regarded as being at the very heart of the problem of educational inequality. In contrast, many Korean responses embody a different epistemology in which even high-achieving students are spurred further toward better excellence in academic achievement. For example, in the following Korean response, children should start “learning at an early age” before attending school and should “learn in advance” once they attend school.

Students from higher socioeconomic backgrounds achieve better because they do cho-gi-hak-sup (learning at an early age). Also, they do son-haeng-hak-sup (learning in advance), and thus they can do well in school [because they have already learned everything]. (translated from a Korean response)

In this example, the “high” semantic focus is associated with two unique Korean terms that are elusive if they are translated literally to English: *cho-gi-hak-sup* and *son-haeng-hak-sup*. Literally translated, *cho-gi-hak-sup* means “learning at an early age,” and *son-haeng-hak-sup* denotes “learning in advance”. However, the actual connotations of these words are quite different from the literal translations. The term *cho-gi-hak-sup* is a widely used term to describe a specific type of early childhood education that teaches preschool children to learn school-curricular content. This *cho-gi-hak-sup* is a sub-category of the latter term *son-haeng-hak-sup*. The actual meaning of this term is “learning far in advance,” usually with the help of someone who is already well versed in the learning materials. This term is different from the Korean word *ye-sup*, which means *preview* in English. The term

ye-sup is a neutral word meaning students view a small amount of the curriculum before the content is taught in class (usually one or a few days ahead). The term *son-haeng-hak-sup* describes students who learn school curricula far ahead (even years ahead) of the national curricular plan, mostly with great assistance (i.e., usually private tutors hired by parents or instructors who teach at private after-school institutes).

The different semantic foci in Table 1 can also distinguish different meanings associated with similar terms and phrases across countries. For example, shadow education is becoming a world phenomenon witnessed across various countries [23]. However, it is notable that local meanings of shadow education may be different if we closely examine the cross-national data. The following response, for example, used such terms as *hak-sup-gi-hoe* (learning opportunities), *hag-won* (private after-school institutes), and *gwa-oi* (private tutoring), but these terms have culturally nuanced meanings that are likely to be lost if translated literally into English.

Students from higher socioeconomic backgrounds have various hak-sup-gi-hoe (learning opportunities) other than formal schooling, such as hag-won (private after-school institutes) and gwa-oi (private tutoring). In addition, their parents tend to pay more attention to children. (translated from a Korean response)

Literally translated, *hak-sup-gi-hoe* means “learning opportunities”. This term is widely used as a technical term in educational studies in South Korea, having a neutral connotation (similar to the concept of “opportunity to learn” in educational studies written in English). However, in the Korean responses, this term usually did not mean students’ learning opportunities in school, but it meant students’ learning opportunities “after school” and “outside school”. Such learning opportunities included using *hag-won* (private after-school institutes) and *gwa-oi* (private tutoring), which belong to the broader concept of *sa-gyo-youk* (private shadow education), as indicated in the following example.

A child from a high socioeconomic background does not rely entirely on formal schooling. He/she is exposed to a variety of opportunities of high-quality sa-gyo-youk (private shadow education). Also, he/she can develop proper learning habits from an early age in an academic atmosphere at home. (translated from a Korean response)

The motivation to use such private shadow education in South Korea tends to stem from the perception that they must enhance achievement beyond the norm (rather than reach the norm [24]). This perspective partially accounts for why *hag-won* (private after-school institutes) and *gwa-oi* (private tutoring) are widely used for *son-heng-hak-sup* (learning in advance) to help (or “make”) students excel at curricular content and achieve higher on standardized tests. In contrast, in many other countries, private tutoring is usually considered (and used as) a remedial means to help students catch up with curricular content and reach the average achievement level [23]. The following example from the United States illustrates such a different underlying assumption regarding tutoring. In this response, tutoring is “needed” only “if the student is struggling”.

Students from a lower SES most likely live in a bad neighborhood, which leads to many other stressors. Also, if the student is struggling, they won’t be able to hire a tutor when needed. Additionally, if they are from a low SES family, their parents probably did not have a higher education, which makes it more difficult for them to help the children with homework. (U.S. response)

In addition, parental support or attention provided to children was frequently mentioned by preservice teachers in different countries. For example, the following answer focuses on “both” in Table 1 and explains student achievement in terms of the degree of “support” from their parents. The underlying assumption is that a child demonstrates higher achievement with more parental support.

Children from households with higher education status are challenged more by their parents and receive more support. [In contrast,] Children from lower economic house-

holds don't learn mathematics as well [due to less support]. (translated from a German response)

However, the data reveal that such parental support does not always convey a positive connotation. The following example, focusing on “neither” in the semantic foci, provides a general statement about student achievement concerning parental attention: “As more parental attention is paid to their child, his/her academic achievement is more likely to get higher”. However, the same response also warns that an “excessive” amount of parental attention toward children is not very educative because it could hinder them from appropriate psychological development even though such parental attention might contribute to higher test scores. Similarly, the phrase “too much” was used to modify the phrase “parental care” of their children. Although not often, excessive parental attention and unwarranted high parental expectations toward their children received criticism in the Korean responses.

As more parental attention is paid to their child, his/her academic achievement is more likely to get higher. However, an excessive degree of parental attention [to their child] or too much parental care [of him/her] may result in his/her lack of [psychological] endurance and autonomy. (translated from a Korean response)

In summary, our explorative analysis of terms and phrases in the original languages suggests that careful attention is necessary due to the many sociolinguistic issues associated with epistemological assumptions around language use. Alternative methodological avenues must be developed to supplement conventional approaches to better grasp subtextual meanings in qualitative data in a cross-national analysis. A holistic reading approach in which different semantic foci are identified in connection to particular terms and phrases is worth further elaboration.

7. Discussion

Our close analysis of the data suggests that preservice teachers’ epistemological assumptions about student achievement and educational inequality may vary in terms of semantic foci and other related sociolinguistic properties. Conventional approaches to cross-national data analysis have often failed to recognize such qualitative variations *across* and *within* different countries. A dilemma is how to avoid the “essentialization” of cultures [25] and consider differences *within* cultures [26] while benefiting from “cultural intuition” [27] by attending to general national patterns *across* cultures. If we focus on exploring the diverse subjectivities of respondents, we are not likely to observe general national patterns because subtle nuances in meaning make it challenging to deal with the data with broad categories. There may be too many subtle meanings. However, if we focus on general national patterns for “comparative” purposes, we may lose the hidden scripts of the responses, as little attention is paid to nuanced meaning. We may oversimplify complexities and ignore subtleties [28].

The data suggest that a holistic reading approach examining different types of semantic foci can be an alternative method to deal with such a dilemma. If we develop a more elaborate holistic reading approach, we can determine patterns at different levels of abstraction, as we can grasp social and personal epistemologies in the data. We position the analysis in an interpretivist approach but do not attempt to rely entirely on qualitative methods. Some scholars have already suggested that we should determine methods to integrate quantitative and qualitative methods in cross-national studies of education rather than regard these as two separate traditions of research [29,30]. Other scholars have also contended that the distinction between quantitative and qualitative analyses may not be helpful if a researcher recognizes a wide array of available analytical tools [22,31].

We do not disregard the profound differences in intellectual traditions between positivist and interpretivist perspectives of methods of inquiry. Instead, it is imperative to have a deep understanding of such differences to enhance the communication between different traditions of comparative and international education studies. However, we think that such

different intellectual traditions are not necessarily associated with the distinction between quantitative and qualitative methods. In addition, such a distinction may become an issue of less practical importance if a researcher is familiar with a wide range of quantitative and qualitative methods. Examining future teachers' general pedagogical knowledge and beliefs cross-nationally requires investigating their epistemological assumptions. The question of how we can do such an analysis systematically produces numerous methodological issues that require further elaboration. One simple yet clear answer to this question may be that any single method alone cannot accomplish everything in a cross-national analysis of teacher knowledge and beliefs. Further creative efforts must be made to develop alternative methods to better compare the "hidden scripts" in cross-national open-ended survey data.

Author Contributions: Conceptualization, S.-H.H. and R.Y.K.; methodology, S.-H.H. and R.Y.K.; validation, S.-H.H. and R.Y.K.; formal analysis, S.-H.H.; writing—original draft preparation, S.-H.H.; writing—review and editing, R.Y.K. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

References

- Alexander, R. *Culture and Pedagogy: International Comparison in Primary Education*; Blackwell Publishing: Malden, MA, USA, 2000.
- Anderson-Levitt, K.M. *Teaching Cultures: Knowledge for Teaching First Grade in France and the United States*; Hampton Press: Cresskill, NJ, USA, 2002.
- Kim, R.Y.; Ham, S.-H.; Paine, L.W. Knowledge expectations in mathematics teacher preparation programs in South Korea and the United States: Towards international dialogue. *J. Teach. Educ.* **2011**, *62*, 48–61. [[CrossRef](#)]
- Goldman, A.I. *Knowledge in a Social World*; Oxford University Press: Oxford, UK, 1999.
- Schmitt, F.F. *Socializing Epistemology: The Social Dimensions of Knowledge*; Rowman & Littlefield: Lanham, MD, USA, 1994.
- Hofer, B.K.; Pintrich, P.R. *Personal Epistemology: The Psychology of Beliefs about Knowledge and Knowing*; Lawrence Erlbaum Associates: Mahwah, NJ, USA, 2002.
- Anderson-Levitt, K.M. *Local Meanings, Global Schooling: Anthropology and World Culture Theory*; Palgrave Macmillan: New York, NY, USA, 2003.
- Paine, L.; Zeichner, K. The local and the global in reforming teaching and teacher education. *Comp. Educ. Rev.* **2012**, *56*, 569–583. [[CrossRef](#)]
- Paine, L.W. The teacher as virtuoso: A Chinese model for teaching. *Teach. Coll. Rec.* **1990**, *92*, 49–81. [[CrossRef](#)]
- Schmidt, W.H.; Jorde, D.; Cogan, L.; Barrier, E.; Gonzalo, I.; Moser, U.; Shimizu, K.; Sawada, T.; Valverde, G.A.; McKnight, C.; et al. *Characterizing Pedagogical Flow: An Investigation of Mathematics and Science Teaching in Six Countries*; Kluwer Academic Publishers: Boston, MA, USA, 1996.
- Berger, P.L.; Luckmann, T. *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*; Anchor Books: New York, NY, USA, 1967.
- Blumer, H. *Symbolic Interactionism: Perspective and Method*; Prentice-Hall: Englewood Cliffs, NJ, USA, 1969.
- Schutz, A. *The phenomenology of the Social World*; Northwestern University Press: Evanston, IL, USA, 1967.
- Anderson-Levitt, K.M. Teaching culture as national and transnational: A response to teachers' work. *Educ. Res.* **2002**, *31*, 19–21. [[CrossRef](#)]
- Cummings, W.K. The institutions of education: Compare, compare, compare! *Comp. Educ. Rev.* **1999**, *43*, 413–437. [[CrossRef](#)]
- MSU Center for Research in Mathematics and Science Education. *The Preparation Gap: Teacher Education for Middle School Mathematics in Six Countries*; Michigan State University: East Lansing, MI, USA, 2007.
- Wortham, S. Linguistic anthropology of education. *Annu. Rev. Anthropol.* **2008**, *37*, 37–51. [[CrossRef](#)]
- Wortham, S. Linguistic anthropology. In *Handbook of Educational Linguistics*; Spolsky, B., Hult, F.M., Eds.; Blackwell Publishing: Malden, MA, USA, 2008; Volume 1, pp. 154–196.
- Agger, B. Critical theory, poststructuralism, postmodernism: Their sociological relevance. *Annu. Rev. Sociol.* **1991**, *17*, 105–131. [[CrossRef](#)]
- Lancaster, R. Text, subtext, and context: Strategies for reading alliance theory. *Am. Ethnol.* **2005**, *32*, 22–27. [[CrossRef](#)]

21. Hambleton, R.K. Adapting achievement tests into multiple languages for international assessments. In *Methodological Advances in Cross-national Surveys of Educational Achievement*; Porter, A.C., Gamoran, A., Eds.; National Academies Press: Washington, DC, USA, 2002; Volume 1, pp. 58–79.
22. Ryan, G.W.; Bernard, H.R. Data management and analysis methods. In *Handbook of Qualitative Research*, 2nd ed.; Denzin, H.K., Lincoln, Y.S., Eds.; Sage Publications: Thousand Oaks, CA, USA, 2000; Volume 1, pp. 769–802.
23. Baker, D.P.; Akiba, M.; LeTendre, G.K.; Wiseman, A. Worldwide shadow education: Outside-school learning, institutional quality of schooling, and cross-national mathematics achievement. *Educ. Eval. Policy Anal.* **2001**, *23*, 1–17. [[CrossRef](#)]
24. Lee, J. Two worlds of private tutoring: The prevalence and causes of after-school mathematics tutoring in Korea and the United States. *Teach. Coll. Rec.* **2007**, *109*, 1207–1234. [[CrossRef](#)]
25. Said, E.W. *Orientalism*; Vintage Books: New York, NY, USA, 1978.
26. Rosaldo, R. *Culture and Truth: The Rethinking of Social Analysis*; Beacon Press: Boston, MA, USA, 1993.
27. Rocha, J.; Alonso, L.; López Mares-Tamayo, M.J.; Reyes McGovern, E. Beyond theoretical sensitivity: The benefits of cultural intuition within qualitative research and Freirean generative themes: Four unique perspectives. *Qual. Rep.* **2016**, *21*, 744–764. [[CrossRef](#)]
28. Arcagni, A.; Fattore, M.; Maggino, F.; Vittadini, G. Some critical reflections on the measurement of social sustainability and well-being in complex societies. *Sustainability* **2021**, *13*, 12679. [[CrossRef](#)]
29. LeTendre, G.K. Advancements in conceptualizing and analyzing cultural effects in cross-national studies of educational achievement. In *Methodological Advances in Cross-National Surveys of Educational Achievement*; Porter, A.C., Gamoran, A., Eds.; National Academies Press: Washington, DC, USA, 2002; Volume 1, pp. 198–228.
30. Wang, J.; Lin, E. Comparative studies on U.S. and Chinese mathematics learning and the implications for standards-based mathematics teaching reform. *Educ. Res.* **2005**, *34*, 3–13. [[CrossRef](#)]
31. Rihoux, B. Qualitative comparative analysis (QCA) and related systematic comparative methods: Recent advances and remaining challenges for social science research. *Int. Sociol.* **2006**, *21*, 679–706. [[CrossRef](#)]